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EXAMINER
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MOORE, IAN N

ART UNIT	PAPER NUMBER
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2616

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/821,962

Applicant(s)

POSTHUMA, CARL ROBERT

Examiner

Ian N. Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 15-17, 19-36, 38-47, 54, 55, 57 and 58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 15-17, 19-36, 38-47, 54, 55, 57 and 58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claim 1, 4,7,10,17,31,33,42, and 54 are objected to because of the following informalities:

**Claim 1** recites the clause the optional language “**adapted for**” in lines 2. The claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure. Applicant is suggested to revise the claim, or clarify that the steps, which follows “adapted for”, to be performed are required (not optional).

**Claims 4,17,31,33,42 and 54** are also objected for the same reason as set forth above in claim 1.

**Claim 7** recites an acronym “PPM” in line 2. For clarity, it is suggested to fully describe an acronym when reciting for the first time in the claim.

**Claim 10** recites an acronym “DAML” in line 2. For clarity, it is suggested to fully describe an acronym when reciting for the first time in the claim.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Jenness (US006404774B1).

**Regarding Claim 1**, Jenness discloses a line card (see FIG. 1, Integrated line Card (ILC) 10) for a telecommunication system (see col. 3, lines 55-65; see col. 4, lines 25-34; POTS/ADSL system) comprising:

a multiple mode circuit (see FIG. 1, Integrated line Card (ILC) 10) adapted for installation in equipment at a central office (see col. 4, line 25-30; ILC 10 is located (inside the equipment) in a central office) that provides at least one of POTS service or ISDN service (see FIG. 1, TDM Mux/Demux 20 for POTS service; see col. 6, lines 14-36) on a single subscriber line (see FIG. 1, a single loop/line/trunk 52 to a subscriber) while concurrently providing xDSL telecommunication service (see FIG. 1, ADSL transceivers 12a-n (where x=A (i.e. Asymmetric) in xDSL)) on said single subscriber line (see col. 4, lines 30-35; see col. 8, lines 1-16; providing both POTS and ADSL services concurrently added on single subscriber loop/trunk/line 52),

the multiple mode circuit including a controller (see FIG. 1, a combined system of control processor 14, signaling sense & control 16 and digital signal processing for voice and signaling 18a-n) that receives the instructions from an external device (see FIG. 1, receiving singling/instruction from the data network management over signaling message channel 55) with regard to the plurality of telecommunication services (see col. 7, lines 4-45; regarding POTS and ADSL) and configures the multiple mode circuit to operate said telecommunication services (see FIG. 1, data network management configures/manages/control ILC 10 for POTS and ADSL services; see col. 7 lines 4-45), wherein the external device comprises one of a broad band

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element management system or a PSTN maintenance center ( see col. 5, lines 4-45; data network management entities at upstream remote source).

**Regarding claim 17**, Jenness discloses Jenness discloses a line card (see FIG. 1, Integrated line Card (ILC) 10) for a telecommunication system (see col. 3, lines 55-65; see col. 4, lines 25-34; POTS/ADSL system) comprising:

a multiple mode circuit (see FIG. 1, Integrated line Card (ILC) 10) adapted for installation in equipment at a central office (see col. 4, line 25-30; ILC 10 is located (inside the equipment) in a central office) that provides xDSL telecommunication service (see FIG. 1, ADSL transceivers 12a-n (where x=A (i.e. Asymmetric) in xDSL)) while concurrently providing at least one of POT service (see FIG. 1, TDM Mux/Demux 20 for POTS service; see col. 6, lines 14-36) on a single subscriber line (see FIG. 1, a single loop/line/trunk 52 to a subscriber; see col. 4, lines 30-35; see col. 8, lines 1-16; providing both POTS and ADSL services concurrently added on single subscriber loop/trunk/line 52).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1-6, 15, 17, 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine (US006356547B1) in view of Garcia (US005566239A).

**Regarding Claim 1**, Valentine discloses a line card (see FIG. 2, a line circuit 75 or FIG. 3, a line circuit 100) for a telecommunication system (see FIG. 1, a communication system; see col. 3, lines 35-37; see col. 7, lines 5-7), comprising:

a multiple mode circuit (see FIG. 3, a line circuit 100 or FIG. 2, a line circuit 75) adapted for installation in equipment (see FIG. 1-2, a line circuit 100 installs inside DLC 42; see col. 4, line 16-46) that provides at least one of POTS service (see FIG. 3, POTS) and ISDN service (see FIG. 3, ISDN; see col. 7, lines 8-21, see col. 5, lines 60-67) on a single subscriber line while concurrently providing xDSL telecommunication service (see FIG. 3, XDSL) on said single subscriber line (see col. 4, lines 14-46; see col. 7, lines 8-21; a single interface provides POTS/ISDN and xDSL services concurrently/parallel over a multiplexed single subscriber loop/trunk 29),

the multiple mode circuit including a controller (see FIG. 2 or 3, a combined system of DSP 66 and store algorithms (memory) 68) that receives the instructions from an external device (see FIG. 1, O/M center 50; see FIG. 2, O/M interface 52) with regard to the plurality of telecommunication services (see col. 5, lines 44-50; see col. 6, lines 1-15; see col. 7, lines 22-59) and configures the multiple mode circuit to operate said telecommunication services (see FIG. 1, O/M center 50 (Operations management center 50) configures/manages/control a line circuit 42 for multiplexed POTS/ISDN and xDSL services; see col. 5, lines 30-50; see col. 6, lines 1-15; see col. 7, lines 22-59), wherein the external device comprises one of a broad band element management system, a PSTN switch, and a PSTN maintenance center (see FIG. 1, O/M center 50, Operations management center 50; see col. 5, lines 44-50; see col. 6, lines 1-15; see col. 7, lines 22-59).

Although Valentine discloses that DLC circuit 42 is at the remote end of the centralized call exchange (i.e. central office) (see Valentine col. 4, line 38-42), Valentine does not explicitly disclose “at a central office”. However, it is well known and established in the art of DLC (Digital Loop Carrier) that DLC interface/line card can be deployed at the central office, and the remote end/terminal is extended end of the central office in order to overcome the trunk distance limitation. In particular, Garcia teaches DLC interface/line card adapted for installation in a equipment at a central office (see FIG. 2, DLC interface/line card 44 at a central office 14; see col. 3, line 54-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a DLC interface/card at a central office, as taught by Garcia in the system of Valentine, so that central office terminal can transmit the digital data signals over digital transmission lines to customer premises equipment and thereby increase circuit carrying capacity; see Garcia col. 1, line 15-29.

**Regarding Claim 2**, Valentine discloses a first circuit interface that supports xDSL service (see FIG. 1, line circuit 41 or FIG. 3, XDSL interface 106; see col. 4, lines 14-46; see col. 7, lines 8-21).

**Regarding Claim 3**, Valentine discloses wherein the first interface supports at least one of asymmetric digital subscriber line service, asymmetric digital subscriber line lite service, and very high bit rate digital subscriber line service (see FIG. 3, ADSL, HDSL interface 106; see col. 4, lines 14-46; see col. 7, lines 8-21).

**Regarding Claim 4**, Valentine discloses a line card (see FIG. 2, a line circuit 75 or FIG. 3, a line circuit 100) for a telecommunication system (see FIG. 1, a communication system; see col. 3, lines 35-37; see col. 7, lines 5-7), comprising:

a multiple mode circuit (see FIG. 3, a line circuit 100 or FIG. 2, a line circuit 75) adapted for installation in a equipment (see FIG. 1-2, a line circuit 100 installs inside DLC 42; see col. 4, line 16-46) that provides at least one of supports a plurality of telecommunications services including xDSL telecommunication service (see FIG. 3, XDSL), ISDN telecommunication service (see FIG. 3, ISDN), and POTS service (see FIG. 3, POTS); see col. 7, lines 8-21, see col. 5, lines 60-67), wherein

the multiple mode circuit comprises a first circuit interface that supports xDSL service, wherein the multiple mode circuit provides xDSL service (see FIG. 1, line circuit 41 or FIG. 3, XDSL interface 106) concurrently with at least one of the POTS service and the ISDN service on a signal subscriber line (see FIG. 1 and 3, POTS/ISDN; see col. 4, lines 14-46; see col. 7, lines 8-21; a single interface provides POTS/ISDN and xDSL services concurrently/parallel over a multiplexed single subscriber loop/trunk 29).

Although Valentine discloses that DLC circuit 42 is at the remote end of the centralized call exchange (i.e. central office) (see Valentine col. 4, line 38-42), Valentine does not explicitly disclose "at a central office". However, it is well known and established in the art of DLC (Digital Loop Carrier) that DLC interface/line card can be deployed at the central office, and the remote end/terminal is extended end of the central office in order to overcome the trunk distance limitation. In particular, Garcia teaches DLC interface/line card adapted for installation in a equipment at a central office (see FIG. 2, DLC interface/line card 44 at a central office 14; see col. 3, line 54-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a DLC interface/card at a central office, as taught by Garcia in the system of Valentine, so that central office terminal can transmit the digital data



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signals over digital transmission lines to customer premises equipment and thereby increase circuit carrying capacity; see Garcia col. 1, line 15-29.

**Regarding Claim 5**, Valentine discloses a second interface that supports at least one of the ISDN telecommunication service and the POTS service (see FIG. 1, line circuit 41 or FIG. 3, ISDN and POTS interface 106; see col. 7, lines 8-21, see col. 5, lines 60-67).

**Regarding Claim 6**, Valentine discloses wherein the second interface supports at least one of 2B1Q ISDN service and 4B3T ISDN service (see FIG. 1, line circuit 41 or FIG. 3, ISDN interface 106; see col. 7, lines 8-21, see col. 5, lines 60-67; ISDN link is 2B1Q).

**Regarding Claim 15**, Valentine discloses wherein the controller is capable of changing the configuration during a communication session (see col. 5, lines 1-43; see col. 6, lines 1-65; see col. 7, lines 10-44; update/change the configuration in/during a communication circuit/line/connection).

**Regarding claim 17**, Valentine discloses a line card (see FIG. 2, a line circuit 75 or FIG. 3, a line circuit 100) for a telecommunication system (see FIG. 1, a communication system; see col. 3, lines 35-37; see col. 7, lines 5-7), comprising:

a multiple mode circuit (see FIG. 3, a line circuit 100 or FIG. 2, a line circuit 75) adapted for installation in equipment (see FIG. 1-2, a line circuit 100 installs inside DLC 42; see col. 4, line 16-46) that provides xDSL telecommunication service (see FIG. 3, XDSL) while concurrently providing at least one of and POTS service (see FIG. 3, POTS; see col. 7, lines 8-21, see col. 5, lines 60-67) on a single subscriber line (see col. 4, lines 14-46; see col. 7, lines 8-21; a single interface provides POTS and xDSL services concurrently/parallel over a multiplexed single subscriber loop/trunk 29).

Although Valentine discloses that DLC circuit 42 is at the remote end of the centralized call exchange (i.e. central office) (see Valentine col. 4, line 38-42), Valentine does not explicitly disclose “at a central office”. However, it is well known and established in the art of DLC (Digital Loop Carrier) that DLC interface/line card can be deployed at the central office, and the remote end/terminal is extended end of the central office in order to overcome the trunk distance limitation. In particular, Garcia teaches DLC interface/line card adapted for installation in a equipment at a central office (see FIG. 2, DLC interface/line card 44 at a central office 14; see col. 3, line 54-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a DLC interface/card at a central office, as taught by Garcia in the system of Valentine, so that central office terminal can transmit the digital data signals over digital transmission lines to customer premises equipment and thereby increase circuit carrying capacity; see Garcia col. 1, line 15-29.

**Regarding Claim 19**, the claim, which has substantially disclosed all the limitations of the respective claim 2. Therefore, it is subjected to the same rejection.

**Regarding Claim 20**, Valentine discloses the multiple mode circuit comprises a first circuit interface that supports xDSL service substantially concomitant (see FIG. 1, line circuit 41 or FIG. 3, XDSL interface 106) with one of the POTS service (see FIG. 1 and 3, POTS; see col. 4, lines 14-46; see col. 7, lines 8-21; interface providing various services operates simultaneously/concomitant since various services are coupled in parallel).

**Regarding Claim 21**, the claim, which has substantially disclosed all the limitations of the respective claim 3. Therefore, it is subjected to the same rejection.

**Regarding Claim 23**, Valentine discloses wherein the multiple mode circuit supports ISDN service (see FIG. 3, ISDN; see col. 7, lines 8-21, see col. 5, lines 60-67).

**Regarding Claim 24**, the claim, which has substantially disclosed all the limitations of the respective claim 6. Therefore, it is subjected to the same rejection.

**Regarding Claim 25**, Valentine discloses wherein the multiple mode circuit supports the ISDN service substantially concomitant (see FIG. 3, ISDN; see col. 7, lines 8-21, see col. 5, lines 60-67) with the xDSL digital subscriber line services (see FIG. 3, XDSL; see col. 7, lines 8-21, see col. 5, lines 60-67).

**Regarding Claim 27**, Valentine discloses an automatic mode circuit that configures the multiple mode circuit (see FIG. 2 or 3, a combined system of DSP 66 and store algorithms (memory) 68; see col. 5, lines 44-50; see col. 6, lines 1-15; see col. 7, lines 22-59).

**Regarding Claim 28**, Valentine discloses wherein the automatic mode circuit configures the multiple mode circuit to operate a combination of the plurality of telecommunication services (see col. 5, lines 44-50; see col. 6, lines 1-15; see col. 7, lines 22-59).

**Regarding Claim 29**, Valentine discloses wherein the automatic mode circuit comprises: a controller (see FIG. 2 or 3, a combined system of DSP 66) that receives instructions with regard to the plurality of telecommunication services and controls the multiple mode circuit in accordance with the instructions (see col. 5, lines 44-50; see col. 6, lines 1-15; see col. 7, lines 22-59).

**Regarding Claim 30**, Valentine discloses wherein the controller receives the instructions from an external device (see FIG. 1, O/M center 50; see FIG. 2, O/M interface 52; see col. 5, lines 44-50; see col. 6, lines 1-15; see col. 7, lines 22-59).

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6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine in view of Garcia and further in view of Barker (US006470020B).

**Regarding Claim 9**, neither Valentine nor Garcia explicitly discloses P-Phone services. However, providing p-phone service is well known in the art. In particular, Barker discloses p-phone services (see abstract; see FIG. 1, p-phone; see col. 1, lines 25-40; see col. 6, lines 64 to col. 7, lines 36). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine and Garcia, by providing p-phone services, as taught by Barker. The motivation to combine is to obtain the advantages/benefits taught by Barker since Barker states at col. 1, line 25-60, col. 2, lines 25-30; col. 3, lines 35-50 that such modification would provide stimulus signaling protocol of p-phone for business handsets, and overcome prior problems by integrating stimulus signaling protocol communication system with message protocol communication system.

Alternatively, the combined system of Valentine and Garcia teaches xDSL services, ISDN, POTS, ADSL, HDSL services, and emerging variety of xDSL services at the line card of the central office. Providing additional p-phone services at the interface do not define a patentable distinct invention over that in the system of Valentine since both the invention as a whole and the combined system of Valentine and Garcia is directed to providing different services at the central office. The degree in which providing two additional services presents no new or unexpected results, so long as different plurality of services is provided in a successful way. Therefore, to provide p-phone services would have been routine experimentation and optimization in the absence of criticality.

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7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine in view of Garcia and further in view of Starr (US006324167B1).

**Regarding Claim 10**, neither Valentine nor Garcia explicitly discloses DAML services. However, providing DAML service is well known in the art. In particular, Starr discloses DAML services (see FIG. 2A, DAML 64 and DAML 58; see col. 2, lines 50 to col. 3, lines 11). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine and Garcia, by providing DAML services, as taught by Starr. The motivation to combine is to obtain the advantages/benefits taught by Starr since Starr states at col. 2, lines 1-29 that such modification would derive additional communication channels wherein each additional communication channel is modulated into a separated frequency band by way to a separated transceiver unit such as a DAML.

The combined system of Valentine and Garcia teaches xDSL services, ISDN, POTS, ADSL, HDSL services, and emerging variety of xDSL services at the line card of the central office. Providing additional DAML services at the interface do not define a patentable distinct invention over that in the combined system of Valentine and Garcia since both the invention as a whole and the system of Valentine is directed to providing different services at the central office. The degree in which providing two additional services presents no new or unexpected results, so long as different pluralities of services are provided in a successful way. Therefore, to provide DAML services would have been routine experimentation and optimization in the absence of criticality.

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8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine in view of Garcia, and further in view of Heidari (US006512739B1).

**Regarding Claim 16**, neither Valentine nor Garcia explicitly disclose changing based upon information received via a handshake signal. However, changing based upon information received via a handshake signal is well known in the art. In particular, Heidari discloses wherein the controller (see FIG. 3, DSP 372) changes the configuration during a communication session based on information received via a handshake signal (see col. 6, lines 40 to col. 7, lines 35). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine and Garcia, by changing based upon set/up (i.e. handshake) signal, as taught by Heidari. The motivation to combine is to obtain the advantages/benefits taught by Heidari since Heidari states at col. 2, lines 20-49 that such modification would provide access to these higher frequency ranges at a reduced cost, and without the complexity.

9. Claims 7,8,22,31,33,34,38-43,45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine in view of Garcia, and further in view of Ham (US006856682B1).

**Regarding Claims 7 and 8**, Valentine does not explicitly disclose POTS with PPM service wherein PPM service is any one of 12kHz PPM service or 16 kHz service. However, the above-mentioned claimed limitations are taught by Ham. In particular, Ham teaches a POTS with PPM service (see FIG. 2, POTS 14) and PPM service is any one of 12kHz PPM service or 16 kHz service (see col. 4, line 40-65; see col. 5, lines 35-40; see col. 8, lines 5-25; POTS with tax/billing/metering tones (i.e. PPM) services at 12k Hz or 16 kHz).

In view of this, having the system of Valentine and then given the teaching of Ham, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Valentine, by providing /billing/metering tones (i.e. PPM) services at 12k Hz or 16 kHz, as taught by Ham. The motivation to combine is to obtain the advantages/benefits taught by Ham since Ham states at col. 1, line 55 to col. 2, lines 20 that such modification would reduce or eliminate the processing of an input signal communicated on a telephone line and provide cost effective POTS splitter that provide billing/metering services tones).

**Regarding Claim 22**, Valentine discloses a second interface that supports the POTS service (see FIG. 1, line circuit 41 or FIG. 3, POTS interface 106; see col. 7, lines 8-21, see col. 5, lines 60-67).

Neither Valentine nor Garcia explicitly disclose POTS with PPM service. However, the above-mentioned claimed limitations are taught by Ham. In particular, Ham discloses a second interface that supports the POTS service (see FIG. 2, frequency component 1, POTS, telephone signals) and POTS with PPM service (see FIG. 2, frequency component 2 for POTS with tax/billing/metering tones (i.e. PPM) services; see col. 4, line 40-65; see col. 5, lines 35-40; see col. 8, lines 5-25).

In view of this, having the combined system of Valentine and Garcia, then given the teaching of Ham, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine and Garcia, by providing POTS with billing/metering tones (i.e. PPM) services, as taught by Ham. The motivation to combine is to obtain the advantages/benefits taught by Ham since Ham states at col. 1, line 55 to

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col. 2, lines 20 that such modification would reduce or eliminate the processing of an input signal communicated on a telephone line and provide cost effective POTS splitter that provide billing/metering services tones).

**Regarding Claim 31**, Valentine discloses a line card (see FIG. 2, a line circuit 75 or FIG. 3, a line circuit 100) for a telecommunication system (see FIG. 1, a communication system; see col. 3, lines 35-37; see col. 7, lines 5-7), comprising:

a multiple mode circuit (see FIG. 3, a line circuit 100 or FIG. 2, a line circuit 75) adapted for installation in equipment (see FIG. 1-2, a line circuit 100 installs inside DLC 42; see col. 4, line 16-46) that supports a plurality of telecommunications services including xDSL telecommunication service (see FIG. 3, XDSL), POTS service (see FIG. 3, POTS); see col. 7, lines 8-21, see col. 5, lines 60-67);

the multiple mode circuit including a controller (see FIG. 2 or 3, a combined system of DSP 66 and store algorithms (memory) 68) that receives the instructions from an external device (see FIG. 1, O/M center 50; see FIG. 2, O/M interface 52) with regard to the plurality of telecommunication services (see col. 5, lines 44-50; see col. 6, lines 1-15; see col. 7, lines 22-59) and configures the multiple mode circuit to concurrently provide a combination of at least two of said plurality of telecommunication service (see col. 4, lines 14-46; see col. 7, lines 8-21; see FIG. 3, POTS/ISDN and xDSL; see col. 7, lines 8-21, see col. 5, lines 60-67) on a single subscriber line (see col. 4, lines 14-46; see col. 7, lines 8-21; a single interface provides POTS/ISDN and xDSL services concurrently/parallel over a multiplexed single subscriber loop/trunk 29),



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wherein the controller is capable of changing the configuration during a communication session (see col. 5, lines 1-43; see col. 6, lines 1-65; see col. 7, lines 10-44; update/change the configuration in/during a communication circuit/line/connection).

Although Valentine discloses that DLC circuit 42 is at the remote end of the centralized call exchange (i.e. central office) (see Valentine col. 4, line 38-42), Valentine does not explicitly disclose "at a central office". However, it is well known and established in the art of DLC (Digital Loop Carrier) that DLC interface/line card can be deployed at the central office, and the remote end/terminal is extended end of the central office in order to overcome the trunk distance limitation. In particular, Garcia teaches DLC interface/line card adapted for installation in a equipment at a central office (see FIG. 2, DLC interface/line card 44 at a central office 14; see col. 3, line 54-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a DLC interface/card at a central office, as taught by Garcia in the system of Valentine, so that central office terminal can transmit the digital data signals over digital transmission lines to customer premises equipment and thereby increase circuit carrying capacity; see Garcia col. 1, line 15-29.

Neither Valentine nor Garcia explicitly discloses POTS with PPM service. However, the above-mentioned claimed limitations are taught by Ham. In particular, Ham teaches a POTS with PPM service (see FIG. 2, POTS 14; see col. 4, line 40-65; see col. 5, lines 35-40; see col. 8, lines 5-25; POTS with tax/billing/metering tones (i.e. PPM) services at 12k Hz or 16 kHz).

In view of this, having the combined system of Valentine and Garcia, then given the teaching of Ham, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine and Garcia, by providing

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POTS taxing/billing/metering tones (i.e. PPM) services at 12k Hz or 16 kHz, as taught by Ham.

The motivation to combine is to obtain the advantages/benefits taught by Ham since Ham states at col. 1, line 55 to col. 2, lines 20 that such modification would reduce or eliminate the processing of an input signal communicated on a telephone line and provide cost effective POTS splitter that provide billing/metering services tones).

**Regarding Claim 33**, Valentine discloses a line card (see FIG. 2, a line circuit 75 or FIG. 3, a line circuit 100) for a telecommunication system (see FIG. 1, a communication system; see col. 3, lines 35-37; see col. 7, lines 5-7), comprising:

a multiple mode circuit (see FIG. 3, a line circuit 100 or FIG. 2, a line circuit 75) adapted for installation in equipment (see FIG. 1-2, a line circuit 100 installs inside DLC 42; see col. 4, line 16-46) that supports a plurality of telecommunications services including xDSL telecommunication service (see FIG. 3, XDSL), ISDN telecommunication service (see FIG. 3, ISDN), POTS telecommunication service (see FIG. 3, POTS); see col. 7, lines 8-21, see col. 5, lines 60-67);

wherein the multiple mode circuit is capable of concomitant operation of the xDSL telecommunication service (see FIG. 1, line circuit 41 or FIG. 3, XDSL interface 106) and the POTS telecommunication service on a single subscriber line (see FIG. 1 and 3, POTS, ISDN and xDSL; see col. 4, lines 14-46; see col. 7, lines 8-21; a single interface provides POTS, ISDN and xDSL services simultaneously/concomitant/parallel over a multiplexed single subscriber loop/trunk 29).

Although Valentine discloses that DLC circuit 42 is at the remote end of the centralized call exchange (i.e. central office) (see Valentine col. 4, line 38-42), Valentine does not explicitly

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disclose "at a central office". However, it is well known and established in the art of DLC (Digital Loop Carrier) that DLC interface/line card can be deployed at the central office, and the remote end/terminal is extended end of the central office in order to overcome the trunk distance limitation. In particular, Garcia teaches DLC interface/line card adapted for installation in a equipment at a central office (see FIG. 2, DLC interface/line card 44 at a central office 14; see col. 3, line 54-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a DLC interface/card at a central office, as taught by Garcia in the system of Valentine, so that central office terminal can transmit the digital data signals over digital transmission lines to customer premises equipment and thereby increase circuit carrying capacity; see Garcia col. 1, line 15-29.

Neither Valentine nor Garcia explicitly disclose POTS with PPM service. However, the above-mentioned claimed limitations are taught by Ham. In particular, Ham teaches a POTS with PPM service (see FIG. 2, POTS 14; see col. 4, line 40-65; see col. 5, lines 35-40; see col. 8, lines 5-25; POTS with tax/billing/metering tones (i.e. PPM) services at 12k Hz or 16 kHz).

In view of this, having the combined system of Valentine and Garcia, then given the teaching of Ham, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine and Garcia, by providing POTS taxing/billing/metering tones (i.e. PPM) services at 12k Hz or 16 kHz, as taught by Ham. The motivation to combine is to obtain the advantages/benefits taught by Ham since Ham states at col. 1, line 55 to col. 2, lines 20 that such modification would reduce or eliminate the processing of an input signal communicated on a telephone line and provide cost effective POTS splitter that provide billing/metering services tones).

**Regarding Claim 34**, Valentine discloses wherein the multiple mode circuit is capable of concomitant operation of the xDSL telecommunication service (see FIG. 1, line circuit 41 or FIG. 3, XDSL interface 106) and the POTS telecommunication service (see FIG. 1 and 3, POTS and ISDN; see col. 4, lines 14-46; see col. 7, lines 8-21; interface providing various services operates simultaneously/concomitant since various services are coupled in parallel). Ham also discloses xDSL telecommunication service substantially concomitant (see FIG. 2, frequency component 3, ADSL) and POTS service (see FIG. 2, frequency component 1, POTS, telephone signals); see col. 4, line 40-65; see col. 5, lines 35-40; see col. 8, lines 5-25).

**Regarding Claim 38**, the claim, which has substantially disclosed all the limitations of the respective claim 8. Therefore, it is subjected to the same rejection.

**Regarding Claim 39**, Valentine discloses wherein the multiple mode circuit is capable of concomitant operation of the xDSL telecommunication service (see FIG. 1, line circuit 41 or FIG. 3, XDSL interface 106) and the ISDN telecommunication service (see FIG. 1 and 3, POTS and ISDN; see col. 4, lines 14-46; see col. 7, lines 8-21; interface providing various services operates simultaneously/concomitant since various services are coupled in parallel).

**Regarding Claim 40**, the claim, which has substantially disclosed all the limitations of the respective claim 6 or 24. Therefore, it is subjected to the same rejection.

**Regarding Claim 41**, the claim, which has substantially disclosed all the limitations of the respective claim 3 or 21. Therefore, it is subjected to the same rejection.

**Regarding Claim 42**, Valentine discloses a method for supporting multiple telecommunication services in a line card (see FIG. 2, a line circuit 75 or FIG. 3, a line circuit 100 and see FIG. 3, DSP 66) comprising the steps of:

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selecting at the line card adapted for installation in equipment (see FIG. 1-2, a line circuit 100 installs inside DLC 42; see col. 4, line 16-46) either a first operational mode or a second operational mode for the line card (see FIG. 3, 106 A-E; see col. 7, lines 6-30; see col. 5, lines 552-65; tuning to the services/bands/modes among A-E services/bands/modes), wherein the first operational mode provides substantial concomitant operation of xDSL telecommunication service and POTS service on a single subscriber line (see col. 7, lines 8-21, see col. 5, lines 60-67; xDSL and POTS over a multiplexed single subscriber loop/trunk 29), and the second operational mode provides substantial concomitant operation of xDSL telecommunication service (see col. 7, lines 8-21, see col. 5, lines 60-67; XDSL) on the single subscriber line (see FIG. 1 and 3, xDSL; see col. 4, lines 14-46; see col. 7, lines 8-21; a single interface provides xDSL service simultaneously/concomitant/parallel over a multiplexed single subscriber loop/trunk 29);

if the first operational mode is selected, separating xDSL telecommunication signals and POTS signals, and processing the xDSL telecommunication signals and the POTS signals (see col. 7, lines 6-30; see col. 5, lines 552-65; separately processing xDSL and POTS);

if the second operational mode is selected, processing the xDSL telecommunication signals and the POTS (see col. 7, lines 6-30; see col. 5, lines 52-65; separately processing xDSL).

Although Valentine discloses that DLC circuit 42 is at the remote end of the centralized call exchange (i.e. central office) (see Valentine col. 4, line 38-42), Valentine does not explicitly disclose "at a central office". However, it is well known and established in the art of DLC (Digital Loop Carrier) that DLC interface/line card can be deployed at the central office, and the

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remote end/terminal is extended end of the central office in order to overcome the trunk distance limitation. In particular, Garcia teaches DLC interface/line card adapted for installation in a equipment at a central office (see FIG. 2, DLC interface/line card 44 at a central office 14; see col. 3, line 54-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a DLC interface/card at a central office, as taught by Garcia in the system of Valentine, so that central office terminal can transmit the digital data signals over digital transmission lines to customer premises equipment and thereby increase circuit carrying capacity; see Garcia col. 1, line 15-29.

Neither Valentine nor Garcia explicitly disclose selecting POTS with PPM service, and separating xDSL telecommunication signals and POTS with PPM signals, and processing POST with PPM service. However, the above-mentioned claimed limitations are taught by Ham. In particular, Ham teaches wherein the first operational mode provides substantial concomitant operation of xDSL telecommunication service (see FIG. 2, frequency component 3, ADSL) and POTS service (see FIG. 2, frequency component 1, POTS, telephone signals), the second operational mode provides substantial concomitant operation of xDSL telecommunication service (see FIG. 2, frequency component 3, ADSL) and POTS with PPM service (see FIG. 2, frequency component 2 for POTS with tax/billing/metering tones (i.e. PPM) services; see col. 4, line 40-65; see col. 5, lines 35-40; see col. 8, lines 5-25),

if the first operational mode is selected, separating xDSL telecommunication signals and POTS signals (see FIG. 2, High pass filter 70 for ADSL and low pass filter 66 for POTS signals), and processing the xDSL telecommunication signals and the POTS signals (see col. 5, lines 45 to col.6, lines 64);

if the second operational mode is selected, separating xDSL telecommunication signals and POTS with PPM signals (see FIG. 2, High pass filter 70 for ADSL and band pass filter 62 for POTS tax/billing/metering tones/signals) and processing the xDSL telecommunication signals and the POTS with PPM signals (see col.6, lines 20 to col. 8, lines 26).

In view of this, having the combined system of Valentine and Garcia, then given the teaching of Ham, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine and Garcia, by providing POTS taxing/billing/metering tones (i.e. PPM) services and separating/filtering xDSL telecommunication signals and POTS with PPM signals, as taught by Ham. The motivation to combine is to obtain the advantages/benefits taught by Ham since Ham states at col. 1, line 55 to col. 2, lines 20 that such modification would reduce or eliminate the processing of an input signal communicated on a telephone line and provide cost effective POTS splitter that provide billing/metering services tones).

**Regarding Claim 43**, Valentine discloses receiving instructions from an external device (see FIG. 1, O/M center 50; see FIG. 2, O/M interface 52) regarding which operational mode to select (see col. 5, lines 44-50; see col. 6, lines 1-15; see col. 7, lines 22-59).

**Regarding Claim 45**, Valentine discloses monitoring operation of the line card; and selecting an operational mode based on operation of the line card (see col. 5, lines 44-50; see col. 6, lines 1-15; see col. 7, lines 22-59).

**Regarding Claim 46**, the claim, which has substantially disclosed all the limitations of the respective claim 3, 21 or 41. Therefore, it is subjected to the same rejection.

**Regarding Claim 47**, the claim, which has substantially disclosed all the limitations of the respective claim 8 or 38. Therefore, it is subjected to the same rejection.

10. Claims 26 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine in view of Garcia and Ham as applied to claim 17 above, and further in view of Barker.

**Regarding Claim 26**, neither Valentine, Garcia nor Ham not explicitly discloses P-Phone services. However, providing p-phone service is well known in the art. In particular, Barker discloses p-phone services (see abstract; see FIG. 1, p-phone; see col. 1, lines 25-40; see col. 6, lines 64 to col. 7, lines 36). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine, Garcia and Ham, by providing p-phone services, as taught by Barker. The motivation to combine is to obtain the advantages/benefits taught by Barker since Barker states at col. 1, line 25-60, col. 2, lines 25-30; col. 3, lines 35-50 that such modification would provide stimulus singling protocol of p-phone for business handsets, and overcome prior problems by integrating stimulus signaling protocol communication system with message protocol communication system.

Alternatively, the combined system of Valentine and Garcia teaches xDSL services, ISDN, POTS, ADSL, HDSL services, and emerging variety of xDSL services at the line card of the central office. Ham teaches POTS services, ADSL services, taxing/billing/metering services at the interface of the central office. Providing additional p-phone services at the interface do not define a patentable distinct invention over that in the system of Valentine since both the invention as a whole and the combined system of Valentine, Garcia and Ham are directed to



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providing different services at the central office. The degree in which providing two additional services presents no new or unexpected results, so long as different plurality of services is provided in a successful way. Therefore, to provide p-phone services would have been routine experimentation and optimization in the absence of criticality.

**Regarding Claim 35**, the claim, which has substantially disclosed all the limitations of the respective claim 26. Therefore, it is subjected to the same rejection.

11. Claims 32 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine in view of Garcia and Ham, and further in view of Heidari (US006512739B1).

**Regarding Claim 32**, neither Valentine, Garcia nor Ham explicitly discloses changing based upon information received via a handshake signal. However, changing based upon information received via a handshake signal is well known in the art. In particular, Heidari discloses wherein the controller (see FIG. 3, DSP 372) changes the configuration during a communication session based on information received via a handshake signal (see col. 6, lines 40 to col. 7, lines 35). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine, Garcia and Ham, by changing based upon set/up (i.e. handshake) signal, as taught by Heidari. The motivation to combine is to obtain the advantages/benefits taught by Heidari since Heidari states at col. 2, lines 20-49 that such modification would provide access to theses higher frequency ranges at a reduced cost, and without the complexity.

**Regarding Claim 44**, the claim, which has substantially disclosed all the limitations of the respective claim 32. Therefore, it is subjected to the same rejection.

12. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine in view of Garcia and Ham, and further in view of Starr (US006324167B1).

**Regarding Claim 36**, neither Valentine, Garcia nor Ham explicitly discloses DAML services. However, providing DAML service is well known in the art. In particular, Starr discloses DAML services (see FIG. 2A, DAML 64 and DAML 58; see col. 2, lines 50 to col. 3, lines 11). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine, Garcia and Ham, by providing DAML services, as taught by Starr. The motivation to combine is to obtain the advantages/benefits taught by Starr since Starr states at col. 2, lines 1-29 that such modification would derive additional communication channels wherein each additional communication channel is modulated into a separated frequency band by way to a separated transceiver unit such as a DAML.

The combined system Valentine and Garcia teaches xDSL services, ISDN, POTS, ADSL, HDSL services, and emerging variety of xDSL services at the line card of the central office. Providing additional DAML services at the interface do not define a patentable distinct invention over that in the system of Valentine since both the invention as a whole and the combined system of Valentine and Ham is directed to providing different services at the central office. The degree in which providing two additional services presents no new or unexpected results, so long as different pluralities of services are provided in a successful way. Therefore, to provide DAML services would have been routine experimentation and optimization in the absence of criticality.

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13. Claims 54,55,57, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine in view of Garcia, Ham and further in view of Barker (US006470020B) and Starr (US006324167B1).

**Regarding Claim 54**, Valentine discloses a line card (see FIG. 2, a line circuit 75 or FIG. 3, a line circuit 100), comprising:

a first interface that supports a plurality of xDSL telecommunication services (see FIG. 1, line circuit 41 or FIG. 3, XDSL interface 106; see col. 7, lines 8-21, see col. 5, lines 60-67);

a second interface that supports a plurality of underlying services (USVs) (see FIG. 1, 3; a combined interface that supports POTS, ISDN, ADSL, HDSL; see col. 5, line 60-65; see col. 7, line 10-20) on the single subscriber line concurrently with said plurality of xDSL telecommunication services (see col. 4, lines 14-46; see col. 7, lines 8-21; a single interface provides POTS, ISDN and xDSL services simultaneously/concomitant/parallel over a multiplexed single subscriber loop/trunk 29), where the first and second interfaces are adapted for installation in equipment (see FIG. 1-2, a line circuit 100 with POTS/ISDN and xDSL interfaces is installed inside DLC 42; see col. 4, line 16-46); and

a controller (see FIG. 2 or 3, a combined system of DSP 66 and store algorithms (memory) 68)) that configures the first interface for one of the plurality of xDSL telecommunication services and configures the second interface for one of the plurality of USVs (see col. 5, lines 44-50; see col. 6, lines 1-15; see col. 7, lines 22-59),

wherein the second interface supports ISDN telecommunication service, POTS service (see FIG. 1, line circuit 41 or FIG. 3, ISDN and POTS interface 106; see col. 7, lines 8-21, see col. 5, lines 60-67).

Although Valentine discloses that DLC circuit 42 is at the remote end of the centralized call exchange (i.e. central office) (see Valentine col. 4, line 38-42), Valentine does not explicitly disclose “at a central office”. However, it is well known and established in the art of DLC (Digital Loop Carrier) that DLC interface/line card can be deployed at the central office, and the remote end/terminal is extended end of the central office in order to overcome the trunk distance limitation. In particular, Garcia teaches DLC interface/line card adapted for installation in a equipment at a central office (see FIG. 2, DLC interface/line card 44 at a central office 14; see col. 3, line 54-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a DLC interface/card at a central office, as taught by Garcia in the system of Valentine, so that central office terminal can transmit the digital data signals over digital transmission lines to customer premises equipment and thereby increase circuit carrying capacity; see Garcia col. 1, line 15-29.

Neither Valentine nor Garcia explicitly disclose PPM service. However, the above-mentioned claimed limitations are taught by Ham. In particular, Ham teaches a POTS with PPM service (see FIG. 2, POTS 14; see col. 4, line 40-65; see col. 5, lines 35-40; see col. 8, lines 5-25; POTS with tax/billing/metering tones (i.e. PPM) services at 12k Hz or 16 kHz).

In view of this, having the combined system of Valentine and Garcia, then given the teaching of Ham, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine and Garcia, by providing /billing/metering tones (i.e. PPM) services, as taught by Ham. The motivation to combine is to obtain the advantages/benefits taught by Ham since Ham states at col. 1, line 55 to col. 2, lines 20 that such modification would reduce or eliminate the processing of an input signal

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communicated on a telephone line and provide cost effective POTS splitter that provide billing/metering services tones).

Neither Valentine, Garcia nor Ham explicitly discloses P-Phone services and Digital Added Mainline (DAML) service. Valentine teaches xDSL services, ISDN, POTS, ADSL, HDSL services, and emerging variety of xDSL services at the line card of the central office. Ham teaches POTS services, ADSL services, taxing/billing/metering services at the interface of the central office. Providing additional p-phone and DAML services at the interface do not define a patentable distinct invention over that in the combined system of Valentine, Garcia and Ham since both the invention as a whole and the combined system of Valentine, Garcia and Ham are directed to providing different services at the central office. The degree in which providing two additional services presents no new or unexpected results, so long as different pluralities of services are provided in a successful way. Therefore, to provide p-phone and DAML services would have been routine experimentation and optimization in the absence of criticality.

Alternatively, neither Valentine, Garcia nor Ham explicitly discloses P-Phone services. However, providing p-phone service is well known in the art. In particular, Barker discloses p-phone services (see abstract; see FIG. 1, p-phone; see col. 1, lines 25-40; see col. 6, lines 64 to col. 7, lines 36). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine, Garcia and Ham, by providing p-phone services, as taught by Barker. The motivation to combine is to obtain the advantages/benefits taught by Barker since Barker states at col. 1, line 25-60, col. 2, lines 25-30; col. 3, lines 35-50 that such modification would provide stimulus singling protocol of p-phone

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for business handsets, and overcome prior problems by integrating stimulus signaling protocol communication system with message protocol communication system.

Alternatively, neither Valentine, Garcia, Ham nor Barker explicitly discloses DAML services. However, providing DAML service is well known in the art. In particular, Starr discloses DAML services (see FIG. 2A, DAML 64 and DAML 58; see col. 2, lines 50 to col. 3, lines 11). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Valentine, Garcia, Ham and Barker, by providing DAML services, as taught by Starr. The motivation to combine is to obtain the advantages/benefits taught by Starr since Starr states at col. 2, lines 1-29 that such modification would derive additional communication channels wherein each additional communication channel is modulated into a separated frequency band by way to a separated transceiver unit such as a DAML.

**Regarding Claim 55**, the claim, which has substantially disclosed all the limitations of the respective claim 3, 21, 41, 46, or 52. Therefore, it is subjected to the same rejection.

**Regarding Claim 57**, the claim, which has substantially disclosed all the limitations of the respective claim 6, 24, 40, or 53. Therefore, it is subjected to the same rejection.

**Regarding Claim 58**, the claim, which has substantially disclosed all the limitations of the respective claim 8, 38, or 47. Therefore, it is subjected to the same rejection.

#### ***Response to Arguments***

14. Applicant's arguments with respect to claims 1-10,15-17,19-36,38-47,54,55,57,58 have been considered but are moot in view of the new ground(s) of rejection.

**Regarding claims 1-10,15-17,19-36,38-47,54,55,57,58, the applicant argued that, "...a telecommunication line card comprising a multiple mode circuit adapted for installation in equipment at a central office that ....while concurrently providing a xDSL service on the same signal subscriber line...and a PSTN maintenance center... ”** in page 9, paragraph 2-3.

**In response to applicant's argument, the examiner respectfully disagrees** with the argument above, and the combined system of Valentine and Garcia discloses the claimed invention as set forth in above in rejection.

**Regarding claims 1-10,15-17,19-36,38-47,54,55,57,58, the applicant argued that,** "...circuitry normally designed for use in digital loop carrier equipment is not interchangeable for use in a central office based on the different operational requirements and interfaces. Therefore, the line circuit 75 disclosed as used in DLC according to Valentine does not disclose and is not equivalent to a multiple mode circuit for equipment at a central office of claim 1..." in page 9.

**In response to applicant's argument, the examiner respectfully disagrees** with the argument above.

Valentine discloses Although DLC circuit 42 is at the remote end of the centralized call exchange (i.e. central office) (see Valentine col. 4, line 38-42). However, it is well known and established in the art of DLC (Digital Loop Carrier) that DLC interface/line card can be deployed at the central office, and the remote end/terminal is extended end of the central office in order to overcome the trunk distance limitation. In contrast to applicant argument, DLC equipment is interchangeable for use at either central office end, remote extended end, or both as one can evidence from the followings prior art:

Garcies et al. (US005566239A)- FIG. 1

Ruether et al (US006151364A)- FIG. 2-3

Ward et al. (US006034972A – FIG. 1-4

GR-303-CORE- DLC standard- (see [www.telcorida.com](http://www.telcorida.com))

**Regarding claims 1-10,15-17,19-36,38-47,54,55,57,58, the applicant argued that,**  
“...Valentine that a single subscriber line is only concurrently provided with one service, not multiple services... Valentine does not teach concurrently on a single subscriber line different communication services are required by claim 1...” in page 10.

**In response to applicant's argument, the examiner respectfully disagrees with the argument above.**

As one skilled in the ordinary art would clearly see from Valentine FIG. 1 and 3 that POTS, ISDN, ADSL, HDSL,..., XDSL services are concurrently/parallel/simultaneously provided by multiplexing onto a single subscriber line/trunk/loop 29 toward the subscriber. It is also clear from viewing from the subscriber 15's side in FIG. 1, where POTS 17, modem 23, and client terminals 27/28 are connected to a signal subscriber line/trunk/loop 29 (see col. 3, line 46-67; see col. 4, line 39-46).

### ***Conclusion***

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO



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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on 9:00 AM- 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 571-272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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